

AMENDMENTS TO THE SPECIFICATION

Please replace Paragraphs [0022] - [0026] and [0029] with the following paragraphs rewritten in amendment format:

[0022] With reference to FIGS. 1-4, a pinion seal assembly 10 is shown at four different stages of being assembled to a carrier/bearing cage 12 and a companion flange 14 of an axle 16 (FIG. 2). The pinion seal assembly 10 is preassembled and includes a metal sleeve portion 18 slidably engaging a seal portion 20 and a first metal retainer ring 22. A second metal retainer ring 24 engages a shoulder 26 on the carrier/bearing cage 12 and engages the first metal retainer ring 22 as well as the seal portion 20. The pinion seal assembly 10 is preassembled with the sleeve portion 18, seal portion 20, first retainer ring 22, and second retainer ring 24 all engaged as will be described in greater detail herein. The preassembly is done prior to installation of the pinion seal assembly 10 onto the axle 16. Since the components of the pinion seal assembly 10 are already assembled, the internal area between the sleeve portion 18 and seal portion 20 including seal lips 28, 30, 32 will not be exposed during assembly on the axle 16. Thus, the chance of contaminants entering or interfering with the seal lips 28, 30, 32 is greatly reduced.

[0023] The sleeve portion 18 is ring shaped with a generally 3-shaped cross-section having a first axially extending ring portion/leg 18A, a radially extending ring portion/leg 18B, and a second axially extending ring portion/leg 18C. The first axially extending ring portion/leg 18A and radially extending ring portion/leg 18B are covered with an elastomeric seal layer 34 including a pair of raised rib portion 36, 38. An outer

surface of the first axially extending ring portion/leg 18A of sleeve portion 18 includes a first portion/leg 18A' having a first predetermined diameter and a second rearward portion/leg 18A'' having a larger diameter than the forward portion/leg 18A' with a ramp portion 18A''' being disposed therebetween. It should be understood that other configurations of the sleeve can be utilized. The seal rings 36, 38 of the sleeve portion 18 are adapted to engage the companion flange 14 of the axle 16 in the assembled condition.

[0024] The seal portion 20 is provided with the first, second, and third seal lips 28, 30, 32. The seal portion 20 has a recessed region 40 disposed in the vicinity of the first seal lip 28. The recessed portion 40 is adapted to receive a garter spring 42 therein for applying a radially inward force to the seal portion 20. The seal portion 20 includes a body portion 44 which engages a first radially inwardly extending flange portion/leg 24A of the second metal retainer ring 24. The second/leg retainer ring 24 includes a second axially extending ring portion 24B/leg and a third radially outwardly extending flange portion/leg 24C which has an end portion/leg 24D which is crimped around a radially outwardly extending flange portion/leg 22A of the first retainer ring 22. The first retainer ring 22 also includes an axially extending ring portion/leg 22B having an inner diameter surface which engages the second axially extending ring portion/leg 18C of sleeve portion 18. The first retainer ring 22 includes a radially inwardly extending flange portion/leg 22C which engages the radially extending ring portion/leg 18B of sleeve portion 18 as illustrated in FIGS. 1-3.

[0025] With reference to FIG. 2, the pinion seal assembly 10 is inserted into a bore 46 such that the seal portion 20 and axially extending ring portion/leg 24B ^{[[241]]} of the second retainer ring 24 are received in and engage the bore 46. The radially outwardly extending flange portion/leg 24C of the second retainer ring 24 engages shoulder 26 of carrier/bearing cage. As shown in FIG. 2, the axle companion flange 14 of axle 16 is inserted into the sleeve portion 18, with the inner diameter of the elastomeric seal 38 initially sliding along the companion flange 14 without an interference fit (as best seen in FIG. 2). With further insertion of the companion flange 14, a radial interference begins to develop between the companion flange 14 and the elastomeric seal 38. The seal 38 and sleeve portion 18 are sized and shaped so that a radial interference condition develops between the seal 38 and the companion flange 14 as the companion flange 14 slides farther into the sleeve portion 18. The interference-condition between the sleeve portion 18 and the companion flange 14 might be designed to occur at any location on the flange 14, or any other component that is assembled to it that is stationery with respect to the flange 14, such as a flange deflector. With further insertion of the companion flange 14, an axial interference condition develops between a deflector 48 and the sleeve 18 (the sleeve abuts the deflector). The axial interference condition between the sleeve 18 may be designed to occur at any location on the deflector 48, flange 14, or any other component that is assembled to and is stationary with respect to the flange 14. The axial interference condition developed prevents further sliding motion between the sleeve 18 and companion flange 14 and is designed to occur before the companion flange 14 abuts the bearing 50. Further installation of the companion flange 14 then causes the sleeve

18 to disengage the first assembly ring 22 before the companion flange 14 reaches the final assembled position, abutting bearing 50 (best seen in FIG. 4).

[0026] The deflector 48 is provided on axle 16 and eventually abuts against the radially extending ring portion/leg 18B of sleeve portion 18, as best seen in FIG. 3. The final radial interference fit, after being fully installed, holds the sleeve portion 18 stationary relative to the companion flange 14 during operation of the axle 16.

[0029] FIGS. 5 and 6 illustrate an alternate embodiment of the pinion seal assembly 110. In this embodiment, the sleeve portion 118 is modified to include a radially outwardly extending flange 120 extending from the second axially extending ring portion/leg 118 such that the flange ~~portion~~ 120 engages the first retainer ring 122. In this embodiment, the first retainer ring 122 does not include a radially inwardly extending flange portion such as radially inwardly extending flange ~~portion~~ 22C of the first retainer ring 22 disposed in the embodiment shown in FIGS. 1-4. In addition, the shape of the second retaining ring 124 has also been changed in order to demonstrate the differing configurations that can be utilized. As illustrated in FIG. 6, the pinion seal assembly 110 is shown in a fully assembled condition such that the sleeve portion 118 is moved axially relative to the seal portion 20. Although the shape and configuration of some of the components are different, the installation process and resulting axial spacing for the pinion seal assembly 110 are the same as in the first embodiment as described above with reference to FIGS. 1-4.